

11.(Once Amended) A process for making a solidified hollow article comprising the steps of :

providing at least one thermoplastic composition comprising a thermoplastic polymeric matrix and short aramid fibers having a diameter of less than or equal to 150 microns, an average length distribution of 0.1 to 8 mm, and a Canadian Standard Freeness of less than or equal to 500 ml.; and
forming a solidified hollow article from the thermoplastic composition.

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REMARKS

The examiner has rejected Claims 1, 11 and 16 - 19 under 35 USC § 112, second paragraph, as being indefinite. The indefiniteness rejection is grounded in Applicants' use of the term "short" which the Examiner indicates is a relative term.

Applicants' attorney respectfully points out to the Examiner that the phrase "short aramid fibers" is defined in the specification at page 4, lines 25 et seq. Claims 1 and 11 have been amended to limit the term "short aramid fibers" to a specified maximum diameter, specified average length distribution and maximum Canadian Standard Freeness value. A copy of International Standard ISO 5267-2 (that explains the Canadian Standard Freeness) is enclosed herewith for the Examiner's benefit. It is respectfully suggested that this basis for rejection has been overcome.

Applicants' attorney wishes to point out to the Examiner the Claims 16 - 20 have been cancelled, rendering the rejection of Claims 16 - 19 on this or any other basis moot. Claims 16 - 20 have been cancelled only to more rapidly move this application forward to allowance. The cancellation of these claims should be without prejudice to Applicant and should not be regarded as an admission that the subject matter thereof is unpatentable. It is Applicants' belief that much of the subject matter of Claims 1 - 15 (as amended) will subsume the inventions defined in Claims 16 - 20, now cancelled.

The Examiner rejected Claims 1, 3 - 7 and 9 - 14 under 35 USC §102(b) as being anticipated by US Patent No. 5,468,530 to Gotz et al. Because Applicant has now included all the limitations of Claim 2 into Claims 1 and 11, this basis for rejection has been overcome and it is respectfully requested that the same be withdrawn.

The Examiner has likewise rejected Claims 8 and 15 under 35 USC §103(a) as being obvious in light of Gotz et al. Claims 8 and 15 now depend from amended Claims 1 and 11. It is Applicants' contention that Claims 1 and 11 are patentable and, if so then Claims 8 and 15 are also patentable.

Finally, the Examiner rejected Claim 2 under 35 USC §103(a) as being obvious in light of Gotz et al., in view of US Patent No. 5,721,031, Echigo et al., and further in view of US Patent No. 6,182,804, Lam. Because all of the limitations of Claim 2 have been inserted into Claims 1 and 11 as amended, Applicants' attorney will address the balance of this response to the patentability of those amended Claims.

The Examiner has cited the combination of three references in an attempt to support the rejection. It is respectfully submitted that the Examiner has failed to make a *prima facie* showing of obviousness.

Applicants' invention, as defined in amended Claim 1, is directed to "A solidified hollow article made from at least one thermoplastic composition . . ." Both the Gotz et al. and the Echigo et al. references are directed to solidified hollow articles that utilize at least one thermoplastic composition in combination with aramid fibers. It is likewise conceded that the Echigo et al. reference teaches the use of fiber diameters and fiber lengths that overlap the ranges set forth in amended Claim 1. Nevertheless, as the Examiner admits, neither of the two references discloses or suggests Applicants' claim limitation directed to a maximum Canadian Standard Freeness for the aramid fibers.

For Applicants' claim limitation relating to a maximum Canadian Standard Freeness for the aramid fibers, the Examiner relies on US Patent Number 6,182,804, Lam. But the Lam reference is directed to the production of a high performance two-ply fibrous base material having primary and secondary layers that are joined together during a wet paper making process. The two-ply fibrous base material is then impregnated with a resin, such as a phenolic resin (*a thermoset, not a thermoplastic*), to make a friction material that requires "high heat resistance" (see all of col.1). Thus, the thermoplastics of Applicants' invention would be useless in such an application. Furthermore, the friction materials produced via the teachings of the Lam reference are indicated to be "especially useful in brake and in clutch applications." (see col.2 lines 61 - 63.) Also, the method by which the friction material is made and the useful applications strongly suggest the manufacture of a sheet product and *not* a solidified hollow article.

For the foregoing reasons the teachings of Lam are non-analogous art and are therefore not properly combined with the teachings of Gotz et al. and Echigo et al. There is no motivation for one skilled in the art of thermoplastics to combine the teachings of Lam (relating to thermoset friction materials) with the Gotz et al. and the Echigo et al. It is respectfully suggested that the Examiner has failed to make a *prima facie* showing of obviousness.

Assuming, *arguendo*, that a *prima facie* showing of obviousness has been made, Applicants' unexpected results overcome that showing. The Examiner's attention is directed to Example 4 (also referred to as Comparative Example C) at pages 14 and 15 of the instant specification. Example 4 was prepared in a manner identical to composition P1 of the invention *except that* CF2 masterbatch (that included 20% rod-like and nonfibrillated aramid fibers having a Candian Standard Freeness greater than or equal to 700 ml) was substituted for masterbatch M (that included fibrillated aramid fibers having a Canadian Standard Freeness of about 215 ml). Example 4 exhibited a sag ratio of 0.56 whereas P1 exhibited a sag ratio of 0.73. Heretofore it was not known that aramid fibers, exhibiting maximum Canadian Standard Freeness of 500 ml, when used in combination with a thermoplastic material, could raise the sag ratio to an unexpectedly high value. Clearly, this

demonstrates the critical and unexpected nature of the use of aramid fibers having a Canadian Standard Freeness of less than 500 ml in accordance with the invention.

The foregoing arguments can likewise be applied to show the patentability of Claim 11 and will not be repeated.

It is respectfully submitted that Claims 1 and 11, the only independent claims that remain pending in the present application, are in a condition for allowance. Hence it is requested that the Examiner reconsider the patentability of all pending claims and issue an office action in accordance therewith.

Respectfully submitted,



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Dated: 2-26-03

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In showing the changes, deleted material is shown as bracketed, and inserted material is shown underlined.

IN THE CLAIMS:

1. A solidified hollow article made from at least one thermoplastic composition, said thermoplastic composition comprising:

(A) a thermoplastic polymeric matrix, and

(B) short aramid fibers having a diameter of less than or equal to 150 microns, an average length distribution of 0.1 to 8 mm, and a Canadian Standard Freeness of less than or equal to 500 ml.

11. A process for making a solidified hollow article comprising the steps of :

providing at least one thermoplastic composition comprising a thermoplastic polymeric matrix and short aramid fibers having a diameter of less than or equal to 150 microns, an average length distribution of 0.1 to 8 mm, and a Canadian Standard Freeness of less than or equal to 500 ml; and

forming a solidified hollow article from the thermoplastic composition.